

# REQUEST FOR ACCESS OF ABANDONED APPLICATION UNDER 37 CFR 1.14(a)

**RECEIVED**  
MAY 15 2000  
File Information Unit

In re: Application of	
Application Number	Filed
67/456,647	12-22-89
Group or Unit	Examiner

Paper No. #6

Assistant Commissioner for Patents  
Washington, DC 20231

I hereby request access under 37 CFR 1.14(a)(1) to the application file record of the above-identified ABANDONED application, which is: (C) (1) (2) (3) (4)

- \_\_\_ (A) referred to in United States Patent number 5831036 column \_\_\_
- \_\_\_ (B) referred to in an application that is open to public inspection as set forth in 37 CFR 1.11, i.e., Application No. \_\_\_\_\_, filed \_\_\_\_\_, on page \_\_\_\_\_ of paper number \_\_\_\_\_
- \_\_\_ (C) an application that claims the benefit of the filing date of an application that is open to public inspection, i.e., Application No. \_\_\_\_\_, filed \_\_\_\_\_, or
- \_\_\_ (D) an application in which the applicant has filed an authorization to lay open the complete application to the public.

Please direct any correspondence concerning this request to the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[Signature]  
Signature

5-15-00  
Date  
[Signature]  
FOR PTO USE ONLY

**United States Patent** [19]

Springer et al.

[11] Patent Number: 5,831,036

[45] Date of Patent: Nov. 3, 1998

**[54] SOLUBLE FRAGMENTS OF HUMAN INTERCELLULAR ADHESION MOLECULE-1**

[75] Inventors: Timothy A. Springer, Newton, Mass.; Robert Rothlein; Steven D. Marlin, both of Danbury, Conn.; Michael L. Dustin, University City, Mo.

[73] Assignee: Dana Farber Cancer Institute, Boston, Mass.

[21] Appl. No.: 140,554

[22] Filed: Oct. 25, 1993

**Related U.S. Application Data**

[60] Division of Ser. No. 515,478, Apr. 27, 1990, abandoned, which is a continuation-in-part of Ser. No. 45,963, May 4, 1987, abandoned, Ser. No. 115,798, Nov. 2, 1997, abandoned, Ser. No. 155,943, Feb. 16, 1988, abandoned, Ser. No. 189,815, May 3, 1988, abandoned, Ser. No. 250,446, Sep. 28, 1988, abandoned, Ser. No. 324,481, Mar. 16, 1989, abandoned, Ser. No. 373,882, Jun. 30, 1989, abandoned, and Ser. No. 456,647, Dec. 22, 1989, abandoned.

[51] Int. Cl.<sup>6</sup> ..... C07K 14/705; A61K 38/17

[52] U.S. Cl. .... 530/395; 424/185.1; 435/69.3; 530/300; 530/350

[58] Field of Search ..... 530/350, 395, 530/300, 868, 403; 424/88, 184.1, 185.1, 198.1, 199.1; 514/2, 8; 435/69.1, 69.3, 69.6

**[56] References Cited****FOREIGN PATENT DOCUMENTS**

0319815B1 6/1989 European Pat. Off.

**OTHER PUBLICATIONS**

Alexander, E.L. et al., Cutaneous Manifestations of Sjögren's Syndrome, in Jordon, R.E., ed., *Immunologic Diseases of the Skin*, Appleton & Lange, Norwalk, CT, San Mateo, CA, pp. 401-408 (1991).

Anderson, D.C. et al., Leukocyte LFA-1, OKM1, p150,95 deficiency syndrome: functional and biosynthetic studies of three kindreds, *Fed. Proceedings* 44(10):2671-2677 (Jul. 1985).

Anderson, D.C. et al., Leukocyte Adhesion Deficiency: An Inherited Defect in the Mac-1, LFA-1, and p150,95 Glycoproteins, *Ann. Rev. Med.* 38:175-194 (1987).

Bashir, R. et al., Expression of LFA-1/ICAM-1 in CNS lymphomas: possible mechanism for lymphoma homing into the brain, *J. Neuro-Oncol.* 12:103-110 (1992).

Boyd, A.M. et al., Intercellular adhesion molecule 1, (ICAM-1) has a central role in cell-cell contact-mediated immune mechanisms, *Proc. Natl. Acad. Sci. USA* 85:3095-3099 (May 1988).

Byers, V.S. et al., Use of an Anti-Pan T-Lymphocyte Ricin A-Chain Immunotoxin in Steroid-Resistant Acute Graft-Versus-Host Disease, *Blood* 75(7):1426-1432 (Apr. 1, 1990).

Colombo, R.J. et al., Isolation of a Monoclonal Antibody That Blocks Attachment of the Major Group of Human Rhinoviruses, *J. Virol.* 57(1):7-12 (Jan. 1986).

Cooper, K.D. et al., Immunologic Features of Psoriasis, in Jordon, R.E., ed., *Immunologic Diseases of the Skin*, Appleton & Lange, Norwalk, CT, San Mateo, CA, pp. 611-619 (1991).

Cosimi, A.B. et al., In Vivo Effects Of Monoclonal Antibody To ICAM-1 (CD54) In Nonhuman Primates With Renal Allografts, *J. Immunol.* 144(12):4604-4612 (Jun. 15, 1990).

Cunningham, C. et al., Antibody engineering—how to be human, *TIBTECH* 10 (Apr. 1992).

Dantal, J. et al., Use of monoclonal antibodies in human transplantation, *Curr. Opin. Immunol.* 3:740-747 (1991).

Davignon, D. et al., Lymphocyte function-associated antigen 1 (LFA-1): A surface antigen distinct from Lys-2,3 that participates in T lymphocyte-mediated killing, *Proc. Natl. Acad. Sci. USA* 78:4535-4539 (Jul. 1981).

Dustin, M.L. et al., Adhesion Of T Lymphoblasts To Epidermal Keratinocytes Is Regulated By Interferon- $\lambda$  And Is Mediated By Intercellular Adhesion Molecule 1 (ICAM-1), *J. Exp. Med.* 167:1323-1340 (Apr. 1988).

Dustin, M.L. et al., Induction By IL 1 And Interferon- $\gamma$  Tissue Distribution, Biochemistry, And Function Of A Natural Adherence Molecule (ICAM-1), *J. Immunol.* 137(1):245-254 (Jul. 1, 1986).

Dustin, M.L. et al., Lymphocyte Function-associated Antigen-1 (LFA-1) Interaction with Intercellular Adhesion Molecule-1 (ICAM-1) is One of At Least Three Mechanisms for Lymphocyte Adhesion to Cultured Endothelial Cells, *J. Cell Biol.* 107:321-331 (Jul. 1988).

Dustin, M.L. et al., Purified Lymphocyte Function-Associated Antigen 3 Binds To CD2 And Mediates T Lymphocyte Adhesion, *J. Exp. Med.* 165:677-692 (Mar. 1987).

Dustin, M.L. et al., Supergene families meet in the immune system, *Immunol. Today* 9(7&8):213-215 (1988).

Dustin, M.L. et al., T-cell receptor cross-linking transiently stimulates adhesiveness through LFA-1, *Nature* 341:619-624 (Oct. 19, 1989).

Fischer, A. et al., Role Of The LFA-1 Molecule In Cellular Interactions Required For Antibody Production In Humans, *J. Immunol.* 136(9):3198-3203 (May 1, 1986).

Flavin, T. et al., Monoclonal Antibodies Against Intercellular Adhesion Molecule 1 Prolong Cardiac Allograft Survival in Cynomolgus Monkeys, *Transplant. Proc.* 23(1):533-534 (Feb. 1991).

(List continued on next page.)

Primary Examiner—Thomas M. Cunningham  
Attorney, Agent, or Firm—Sterne, Kessler, Goldstein & Fox P.L.L.C.

**[57] ABSTRACT**

The present invention relates to intercellular adhesion molecules (ICAM-1) which are involved in the process through which lymphocytes recognize and migrate to sites of inflammation as well as attach to cellular substrates during inflammation. The invention is directed toward such molecules; screening assays for identifying such molecules and antibodies capable of binding such molecules. The invention also includes uses for adhesion molecules and for the antibodies that are capable of binding them.

4 Claims, 25 Drawing Sheets